

SEQUENCE LISTING

<110> BRISTOL-MYERS SQUIBB CO.
 <120> USE OF KCNQ2 AND KCNQ3 GENES FOR THE DIASCOVERY OF AGENTS USEFUL
 IN THE TREATMENT OF NEUROLOGICAL DISORDERS
 <130> DM-7029 DIV
 <150> US 60/110,804
 <151> 1998-12-03
 <150> US 09/454,868
 <151> 1999-12-03
 <160> 15
 <170> PatentIn version 3.2
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<213> Homo sapiens

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<220>
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<400> 2

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Glu Lys Lys Leu Lys Val Gly Phe Val Gly Leu Asp Pro Gly Ala Pro
20          25          30

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Asp Ser Thr Arg Asp Gly Ala Leu Leu Ile Ala Gly Ser Glu Ala Pro
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Lys Arg Gly Ser Ile Leu Ser Lys Pro Arg Ala Gly Gly Ala Gly Ala
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Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe
 65 70 75 80

Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His
 85 90 95

Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe
 100 105 110

Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile
 115 120 125

Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg
 130 135 140

Ile Trp Ala Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg
 145 150 155 160

Leu Lys Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Ile Met Val Leu
 165 170 175

Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe
 180 185 190

Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met
 195 200 205

Ile Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val
 210 215 220

Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe
 225 230 235 240

Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly
 245 250 255

Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu
 260 265 270

Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Tyr Pro Gln Thr Trp

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Phe	Ala	Leu	Pro	Ala	Gly	Ile	Leu	Gly	Ser	Gly	Phe	Ala	Leu	Lys	Val
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Gln	Glu	Gln	His	Arg	Gln	Lys	His	Phe	Glu	Lys	Arg	Arg	Asn	Pro	Ala
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Ser	Ser	Gln	Lys	Val	Ser	Leu	Lys	Asp	Arg	Val	Phe	Ser	Ser	Pro	Arg
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Gly	Val	Ala	Ala	Lys	Gly	Lys	Gly	Ser	Pro	Gln	Ala	Gln	Thr	Val	Arg
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Arg	Ser	Pro	Ser	Ala	Asp	Gln	Ser	Leu	Glu	Asp	Ser	Pro	Ser	Lys	Val
465					470					475					480
Pro	Lys	Ser	Trp	Ser	Phe	Gly	Asp	Arg	Ser	Arg	Ala	Arg	Gln	Ala	Phe
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Arg	Ile	Lys	Gly	Ala	Ala	Ser	Arg	Gln	Asn	Ser	Glu	Glu	Ala	Ser	Leu
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Pro Gly Glu Asp Ile Val Asp Asp Lys Ser Cys Pro Cys Glu Phe Val
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Thr Glu Asp Leu Thr Pro Gly Leu Lys Val Ser Ile Arg Ala Val Cys
 530 535 540

Val Met Arg Phe Leu Val Ser Lys Arg Lys Phe Lys Glu Ser Leu Arg
 545 550 555 560

Pro Tyr Asp Val Met Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu
 565 570 575

Asp Met Leu Ser Arg Ile Lys Ser Leu Gln Ser Arg Val Asp Gln Ile
 580 585 590

Val Gly Arg Gly Pro Ala Ile Thr Asp Lys Asp Arg Thr Lys Gly Pro
 595 600 605

Ala Glu Ala Glu Leu Pro Glu Asp Pro Ser Met Met Gly Arg Leu Gly
 610 615 620

Lys Val Glu Lys Gln Val Leu Ser Met Glu Lys Lys Leu Asp Phe Leu
 625 630 635 640

Val Asn Ile Tyr Met Gln Arg Met Gly Ile Pro Pro Thr Glu Thr Glu
 645 650 655

Ala Tyr Phe Gly Ala Lys Glu Pro Glu Pro Ala Pro Pro Tyr His Ser
 660 665 670

Pro Glu Asp Ser Arg Glu His Val Asp Arg His Gly Cys Ile Val Lys
 675 680 685

Ile Val Arg Ser Ser Ser Ser Thr Gly Gln Lys Asn Phe Ser Ala Pro
 690 695 700

Pro Ala Ala Pro Pro Val Gln Cys Pro Pro Ser Thr Ser Trp Gln Pro
 705 710 715 720

Gln Ser His Pro Arg Gln Gly His Gly Thr Ser Pro Val Gly Asp His
 725 730 735

Gly Ser Leu Val Arg Ile Pro Pro Pro Pro Ala His Glu Arg Ser Leu
740 745 750

Ser Ala Tyr Gly Gly Gly Asn Arg Ala Ser Met Glu Phe Leu Arg Gln
755 760 765

Glu Asp Thr Pro Gly Cys Arg Pro Pro Glu Gly Asn Leu Arg Asp Ser
770 775 780

Asp Thr Ser Ile Ser Ile Pro Ser Val Asp His Glu Glu Leu Glu Arg
785 790 795 800

Ser Phe Ser Gly Phe Ser Ile Ser Gln Ser Lys Glu Asn Leu Asp Ala
805 810 815

Leu Asn Ser Cys Tyr Ala Ala Val Ala Pro Cys Ala Lys Val Arg Pro
820 825 830

Tyr Ile Ala Glu Gly Glu Ser Asp Thr Asp Ser Asp Leu Cys Thr Pro
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Cys Gly Pro Pro Pro Arg Ser Ala Thr Gly Glu Gly Pro Phe Gly Asp
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Val Gly Trp Ala Gly Pro Arg Lys
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<210> 3
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<212> PRT
<213> Homo sapiens

<220>
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Glu Lys Lys Leu Lys Val Gly Phe Val Gly Leu Asp Pro Gly Ala Pro
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Asp Ser Thr Arg Asp Gly Ala Leu Leu Ile Ala Gly Ser Glu Ala Pro
 35 40 45

Lys Arg Gly Ser Ile Leu Ser Lys Pro Arg Ala Gly Gly Ala Gly Ala
 50 55 60

Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe
 65 70 75 80

Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His
 85 90 95

Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe
 100 105 110

Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile
 115 120 125

Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg
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Ile Trp Ala Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg
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Leu Lys Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Ile Met Val Leu
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Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe
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Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met
 195 200 205

Ile Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val
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Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe
 225 230 235 240

Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly
 245 250 255

Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu
 260 265 270

Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Tyr Pro Gln Thr Trp
 275 280 285

Asn Gly Arg Leu Leu Ala Ala Thr Phe Thr Leu Ile Gly Val Ser Phe
 290 295 300

Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val
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Gln Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala
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Ala Gly Leu Ile Gln Ser Ala Trp Arg Phe Xaa Ala Thr Asn Leu Ser
 340 345 350

Arg Thr Asp Leu His Ser Thr Trp Gln Tyr Tyr Glu Arg Thr Val Thr
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Val Pro Met Tyr Ser Ser Gln Thr Gln Thr Tyr Gly Ala Ser Arg Leu
 370 375 380

Ile Pro Pro Leu Asn Gln Leu Glu Leu Leu Arg Asn Leu Lys Ser Lys
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Ser Gly Leu Ala Phe Arg Lys Asp Pro Pro Pro Glu Pro Ser Pro Ser
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Pro Arg Gly Val Ala Ala Lys Gly Lys Gly Ser Pro Gln Ala Gln Thr
 420 425 430

Val Arg Arg Ser Pro Ser Ala Asp Gln Ser Leu Glu Asp Ser Pro Ser
 435 440 445

Lys Val Pro Lys Ser Trp Ser Phe Gly Asp Arg Ser Arg Ala Arg Gln
 450 455 460

Ala Phe Arg Ile Lys Gly Ala Ala Ser Arg Gln Asn Ser Glu Glu Ala

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Asp His Gly Ser Leu Val Arg Ile Pro Pro Pro Pro Ala His Glu Arg
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Ser Leu Ser Ala Tyr Gly Gly Gly Asn Arg Ala Ser Met Glu Phe Leu
725 730 735

Arg Gln Glu Asp Thr Pro Gly Cys Arg Pro Pro Glu Gly Asn Leu Arg
740 745 750

Asp Ser Asp Thr Ser Ile Ser Ile Pro Ser Val Asp His Glu Glu Leu
755 760 765

Glu Arg Ser Phe Ser Gly Phe Ser Ile Ser Gln Ser Lys Glu Asn Leu
770 775 780

Asp Ala Leu Asn Ser Cys Tyr Ala Ala Val Ala Pro Cys Ala Lys Val
785 790 795 800

Arg Pro Tyr Ile Ala Glu Gly Glu Ser Asp Thr Asp Ser Asp Leu Cys
805 810 815

Thr Pro Cys Gly Pro Pro Pro Arg Ser Ala Thr Gly Glu Gly Pro Phe
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Gly Asp Val Gly Trp Ala Gly Pro Arg Lys
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<212> DNA
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<211> 825
<212> PRT
<213> Homo sapiens

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<400> 5
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Gly Asp Val Glu Gln Val Thr Leu Ala Leu Gly Ala Gly Ala Asp Lys
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Asp Gly Thr Leu Leu Leu Glu Gly Gly Gly Arg Asp Glu Gly Gln Arg
20          25          30

```

```

Arg Thr Pro Gln Gly Ile Gly Leu Leu Ala Lys Thr Pro Leu Ser Arg
35          40          45

```

```

Pro Val Lys Arg Asn Asn Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile
50          55          60

```

```

Tyr Asp Ala Leu Glu Arg Pro Arg Gly Trp Ala Leu Leu Tyr His Ala
65          70          75          80

```

```

Leu Val Phe Leu Ile Val Leu Gly Cys Leu Ile Leu Ala Val Leu Thr
85          90          95

```

```

Thr Phe Lys Glu Tyr Glu Thr Val Ser Gly Asp Trp Leu Leu Leu
100          105          110

```

Glu Thr Phe Ala Ile Phe Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile
 115 120 125
 Trp Ala Ala Gly Cys Cys Cys Arg Tyr Lys Gly Trp Arg Gly Arg Leu
 130 135 140
 Lys Phe Ala Arg Lys Pro Leu Cys Met Leu Asp Ile Phe Val Leu Ile
 145 150 155 160
 Ala Ser Val Pro Val Val Ala Val Gly Asn Gln Gly Asn Val Leu Ala
 165 170 175
 Thr Ser Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Leu Arg
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 Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys
 195 200 205
 Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu Thr
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 Leu Ile Leu Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Val Pro
 225 230 235 240
 Glu Val Asp Ala Gln Gly Glu Glu Met Lys Glu Glu Phe Glu Thr Tyr
 245 250 255
 Ala Asp Ala Leu Trp Trp Gly Leu Ile Thr Leu Ala Thr Ile Gly Tyr
 260 265 270
 Gly Asp Lys Thr Pro Lys Thr Trp Glu Gly Arg Leu Ile Ala Ala Thr
 275 280 285
 Phe Ser Leu Ile Gly Val Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu
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 Gly Ser Gly Leu Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His
 305 310 315 320
 Phe Glu Lys Arg Arg Lys Pro Ala Ala Glu Leu Ile Gln Ala Ala Trp
 325 330 335

Arg Tyr Tyr Ala Thr Asn Pro Asn Arg Ile Asp Leu Val Ala Thr Trp
 340 345 350

Arg Phe Tyr Glu Ser Val Val Ser Phe Pro Phe Phe Arg Lys Glu Gln
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Leu Glu Ala Ala Ser Ser Gln Lys Leu Gly Leu Leu Asp Arg Val Arg
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Leu Ser Asn Pro Arg Gly Ser Asn Thr Lys Gly Lys Leu Phe Thr Pro
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Leu Asn Val Asp Ala Ile Glu Glu Ser Pro Ser Lys Glu Pro Lys Pro
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Val Gly Leu Asn Asn Lys Glu Arg Phe Arg Thr Ala Phe Arg Met Lys
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Ala Tyr Ala Phe Trp Gln Ser Ser Glu Asp Ala Gly Thr Gly Asp Pro
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Met Ala Glu Asp Arg Gly Tyr Gly Asn Asp Phe Pro Ile Glu Asp Met
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Ile Pro Thr Leu Lys Ala Ala Ile Arg Ala Val Arg Ile Leu Gln Phe
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Arg Leu Tyr Lys Lys Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val
 485 490 495

Lys Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Ser
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Arg Ile Lys Tyr Leu Gln Thr Arg Ile Asp Met Ile Phe Thr Pro Gly
 515 520 525

Pro Pro Ser Thr Pro Lys His Lys Lys Ser Gln Lys Gly Ser Ala Phe
 530 535 540

Thr Phe Pro Ser Gln Gln Ser Pro Arg Asn Glu Pro Tyr Val Ala Arg
 545 550 555 560

Pro Ser Thr Ser Glu Ile Glu Asp Gln Ser Met Met Gly Lys Phe Val

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Arg	Asp	Ser	Asp	Thr	Pro	Leu	Ser	Leu	Met	Ser	Val	Asn	His	Glu	Glu				
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Val Trp Thr Pro Ser Asn Lys Pro Ile
820 825

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<212> DNA
<213> Rattus norvegicus

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 <212> PRT

<213> Rattus norvegicus

<400> 7

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Ala Pro Ser Gly Gly Glu Ala Asp Gly Ala Gln Gly Ser Gln Gly Ile
35 40 45

Gly Leu Leu Ala Lys Thr Pro Leu Ser Arg Pro Val Lys Arg Asn Asn
50 55 60

Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile Tyr Asp Ala Leu Glu Arg
65 70 75 80

Pro Arg Gly Trp Ala Leu Leu Tyr His Ala Leu Val Phe Leu Ile Val
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Leu Gly Cys Leu Ile Leu Ala Val Leu Thr Thr Phe Lys Glu Tyr Glu
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Thr Val Ser Gly Asp Trp Leu Leu Leu Leu Glu Thr Phe Ala Ile Phe
115 120 125

Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile Trp Ala Ala Gly Cys Cys
130 135 140

Cys Arg Tyr Lys Gly Trp Arg Gly Arg Leu Lys Phe Ala Arg Lys Pro
145 150 155 160

Leu Cys Met Leu Asp Ile Phe Val Leu Ile Ala Ser Val Pro Val Val
165 170 175

Ala Val Gly Asn Gln Gly Asn Val Leu Ala Thr Ser Leu Arg Ser Leu
180 185 190

Arg Phe Leu Gln Ile Leu Arg Met Leu Arg Met Asp Arg Arg Gly Gly
195 200 205

Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys Ala His Ser Lys Glu Leu

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Glu Glu Met Lys 260	Glu Glu Phe Glu Thr 265	Tyr Ala Asp Ala Leu Trp Trp 270
Gly Leu Ile Thr 275	Leu Ala Thr Ile 280	Gly Tyr Gly Asp Lys Thr Pro Lys 285
Thr Trp Glu Gly Arg 290	Leu Ile Ala Ala Thr 295	Phe Ser Leu Ile Gly Val 300
Ser Phe Phe Ala Leu 305	Pro Ala Gly Ile Leu 310	Gly Ser Gly Leu Ala Leu 315 320
Lys Val Gln Glu Gln 325	His Arg Gln Lys His 330	Phe Glu Lys Arg Arg Lys 335
Pro Ala Ala Glu Leu 340	Ile Gln Ala Ala Trp 345	Arg Tyr Tyr Ala Thr Asn 350
Pro Asn Arg Leu Asp 355	Leu Val Ala Thr Trp 360	Arg Phe Tyr Glu Ser Val 365
Val Ser Phe Pro Phe 370	Phe Arg Lys Glu Gln 375	Leu Glu Ala Ala Ala Ser 380
Gln Lys Leu Gly Leu 385	Leu Asp Arg Val Arg 390	Leu Ser Asn Pro Arg Gly 395 400
Ser Asn Thr Lys 405	Gly Lys Leu Phe Thr 410	Pro Leu Asn Val Asp Ala Ile 415
Glu Glu Ser Pro Ser 420	Lys Glu Pro Lys Pro 425	Val Gly Leu Asn Asn Lys 430
Glu Arg Phe Arg Thr 435	Ala Phe Arg Met Lys 440	Ala Tyr Ala Phe Trp Gln 445

Ser Ser Glu Asp Ala Gly Thr Gly Asp Pro Met Thr Glu Asp Arg Gly
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Tyr Gly Asn Asp Phe Leu Ile Glu Asp Met Ile Pro Thr Leu Lys Ala
 465 470 475 480

Ala Ile Arg Ala Val Arg Ile Leu Gln Phe Arg Leu Tyr Lys Lys Lys
 485 490 495

Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys Asp Val Ile Glu Gln
 500 505 510

Tyr Ser Ala Gly His Leu Asp Met Leu Ser Arg Ile Lys Tyr Leu Gln
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Thr Arg Ile Asp Met Ile Phe Thr Pro Gly Pro Pro Ser Thr Pro Lys
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His Lys Lys Ser Gln Lys Gly Ser Ala Phe Thr Tyr Pro Ser Gln Gln
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Ser Pro Arg Asn Glu Pro Tyr Val Ala Arg Ala Ala Thr Ser Glu Thr
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Glu Asp Gln Ser Met Met Gly Lys Phe Val Lys Val Glu Arg Gln Val
 580 585 590

His Asp Met Gly Lys Lys Leu Asp Phe Leu Val Asp Met His Met Gln
 595 600 605

His Met Glu Arg Leu Gln Val Arg Val Thr Glu Tyr Tyr Pro Thr Lys
 610 615 620

Gly Ala Ser Ser Pro Ala Glu Gly Glu Lys Lys Glu Asp Asn Arg Tyr
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Ser Asp Leu Lys Thr Ile Ile Cys Asn Tyr Ser Glu Ser Gly Pro Pro
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Asp Pro Pro Tyr Ser Phe His Gln Val Pro Ile Asp Arg Val Gly Pro
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Tyr Gly Phe Phe Ala His Asp Pro Val Lys Leu Thr Arg Gly Gly Pro
675 680 685

Ser Ser Thr Lys Ala Gln Ala Asn Leu Pro Ser Ser Gly Ser Thr Tyr
690 695 700

Ala Glu Arg Pro Thr Val Leu Pro Ile Leu Thr Leu Leu Asp Ser Cys
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Val Ser Tyr His Ser Gln Thr Glu Leu Gln Gly Pro Tyr Ser Asp His
725 730 735

Ile Ser Pro Arg Gln Arg Arg Ser Ile Thr Arg Asp Ser Asp Thr Pro
740 745 750

Leu Ser Leu Met Ser Val Asn His Glu Glu Leu Glu Arg Ser Pro Ser
755 760 765

Gly Phe Ser Ile Ser Gln Asp Arg Asp Asp Tyr Val Phe Gly Pro Ser
770 775 780

Gly Gly Ser Ser Trp Met Arg Glu Lys Arg Tyr Leu Ala Glu Gly Glu
785 790 795 800

Thr Asp Thr Asp Thr Asp Pro Phe Thr Pro Ser Gly Ser Met Pro Met
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Ser Ser Thr Gly Asp Gly Ile Ser Asp Ser Ile Trp Thr Pro Ser Asn
820 825 830

Lys Pro Thr
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<213> Rattus norvegicus

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Lys Arg Gly Ser Val Leu Ser Lys Pro Arg Thr Gly Gly Ala Gly Ala
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Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe
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Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His
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Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe
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Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile
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Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg
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Ile Trp Ala Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg
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Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe
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Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met
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Ile Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val
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Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe
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Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly
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Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu
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Asn Gly Arg Leu Leu Ala Ala Thr Phe Thr Leu Ile Gly Val Ser Phe
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Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val
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Gln Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala
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Ala Gly Leu Ile Gln Ser Ala Trp Arg Phe Tyr Ala Thr Asn Leu Ser
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Arg Thr Asp Leu His Ser Thr Trp Gln Tyr Tyr Glu Arg Thr Val Thr
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Val Pro Met Ile Ser Ser Gln Thr Gln Thr Tyr Gly Ala Ser Arg Leu
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Ile Pro Pro Leu Asn Gln Leu Glu Met Leu Arg Asn Leu Lys Ser Lys
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Ser Gly Leu Thr Phe Arg Lys Glu Pro Gln Pro Glu Pro Ser Pro Ser
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Gln Lys Val Ser Leu Lys Asp Arg Val Phe Ser Ser Pro Arg Gly Val
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Ala Ala Lys Gly Lys Gly Ser Pro Gln Ala Gln Thr Val Arg Arg Ser
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Pro Ser Ala Asp Gln Ser Leu Asp Asp Ser Pro Ser Lys Val Pro Lys
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Ser Trp Ser Phe Gly Asp Arg Ser Arg Ala Arg Gln Ala Phe Arg Ile
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Lys Gly Ala Ala Ser Arg Gln Asn Ser Glu Glu Ala Ser Leu Pro Gly
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Glu Asp Ile Val Glu Asp Asn Lys Ser Cys Asn Cys Glu Phe Val Thr
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Glu Asp Leu Thr Pro Gly Leu Lys Val Ser Ile Arg Ala Val Cys Val
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Met Arg Phe Leu Val Ser Lys Arg Lys Phe Lys Glu Ser Leu Arg Pro
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Gly Arg Gly Pro Thr Ile Thr Asp Lys Asp Arg Thr Lys Gly Pro Ala
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Glu Thr Glu Leu Pro Glu Asp Pro Ser Met Met Gly Arg Leu Gly Lys
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Val Glu Lys Gln Val Leu Ser Met Glu Lys Lys Leu Asp Phe Leu Val
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Tyr Phe Gly Ala Lys Glu Pro Glu Pro Ala Pro Pro Tyr His Ser Pro
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Glu Asp Ser Arg Asp His Ala Asp Lys His Gly Cys Ile Ile Lys Ile
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Val Arg Ser Thr Ser Ser Thr Gly Gln Arg Lys Tyr Ala Ala Pro Pro
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Val Met Pro Pro Ala Glu Cys Pro Pro Ser Thr Ser Trp Gln Gln Ser
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Arg Ile Pro Pro Pro Pro Ala His Glu Arg Ser Leu Ser Ala Tyr Ser
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